Claims

We claim the following:

1. A method of moving data between zones of a central processing complex, said method comprising:

   5   initiating a move of data from one zone of said central processing complex to another zone of said central processing complex; and

        moving said data from said one zone to said another zone without using a channel interface and without
   10   using processor instructions.

2. The method of claim 1, wherein said data comprises at least one of a command, a response and one or more data areas.

3. The method of claim 1, wherein said one zone is one
   15 of an operating system zone and a coupling facility zone and said another zone is the other of said operating system zone and said coupling facility zone.

4. The method of claim 1, wherein said moving is performed by a data mover located within said central
   20 processing complex and coupled to said one zone and said another zone.

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5. The method of claim 4, wherein said initiating comprises instructing said data mover to perform the move.

6. The method of claim 4, wherein said data mover comprises a fetch state machine and a store state machine
5 employed in moving said data.

7. The method of claim 1 further comprising determining whether said another zone is ready for the move, wherein the move does not take place until said another zone is ready.

10 8. The method of claim 7, wherein said determining comprises determining whether said another zone is ready to receive a command from said one zone, wherein the move does not take place until said another zone is ready to receive the command.

15 9. The method of claim 7, wherein said determining comprises checking a buffer to determine whether said another zone is ready.

10. The method of claim 9, wherein said buffer is of a data mover used for said moving.

20 11. The method of claim 1, wherein said moving comprises determining whether said another zone is ready to receive one or more data areas of said data, prior to moving the one or more data areas from said one zone to said another zone.

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12. The method of claim 11, wherein said determining comprising determining whether a predefined command is received from said one zone and said another zone by a data mover employed to perform the move, wherein receipt of the predefined command from said one zone and said another zone indicates said another zone is prepared to receive the one or more data areas.

13. The method of claim 1, wherein said moving comprises:

    fetching data from a main memory of said one zone using one or more fetch memory requests generated by a fetch state machine; and

    storing the fetched data in a main memory of said another zone using one or more store memory requests generated by a store state machine.

14. The method of claim 13, further comprising placing said fetched data in one or more line buffers, which are used by said store state machine to generate the one or more store memory requests.

15. The method of claim 13, wherein at least one of said one or more fetch memory requests and said one or more store memory requests is generated using information retrieved from an array coupled to at least one of said fetch state machine and said store state machine.

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16.   The method of claim 13, wherein said fetching comprises processing by said main memory of said one zone said one or more fetch memory requests to fetch said data, wherein one or more responses by said main memory of said 5 one zone to said one or more fetch memory requests are not necessarily in a same order as receipt of the one or more fetch memory requests.

17.   The method of claim 13, further comprising tracking progress of the fetching of the data and the storing of the 10 fetched data.

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18. A method of moving data between zones of a central
processing complex, said method comprising:

   moving data from one zone of said central
   processing complex to another zone of said central
5 processing complex, wherein said moving comprises:

      creating one or more queue entries associated
      with a message requesting the move;

      generating one or more fetch memory requests
      for said one or more queue entries to fetch the
10   data from a memory of said one zone;

      using the one or more fetch memory requests to
      fetch the data from the memory of said one zone;

      placing the fetched data in one or more line
      buffers;

15   generating one or more store memory requests
      using the fetched data placed in the one or more
      line buffers; and

      employing the one or more store memory
      requests to store the fetched data in a memory of
20   said another zone.

19. The method of claim 18, wherein said moving is performed by a data mover located within said central processing complex and coupled to said one zone and said another zone.

5   20. The method of claim 19, wherein said data mover comprises control logic to perform the creating, and a queued memory line mover to perform the generating of one or more fetch memory requests, the placing of the fetched data in one or more line buffers, and the generating of one or
10 more store memory requests.

21. A system of moving data between zones of a central
processing complex, said system comprising:

  means for initiating a move of data from one zone
  of said central processing complex to another zone of
5 said central processing complex; and

  means for moving said data from said one zone to
  said another zone without using a channel interface and
  without using processor instructions.

22. The system of claim 21, wherein said data comprises
10 at least one of a command, a response and one or more data
areas.

23. The system of claim 21, wherein said one zone is
one of an operating system zone and a coupling facility zone
and said another zone is the other of said operating system
15 zone and said coupling facility zone.

24. The system of claim 21, wherein said means for
moving comprises a data mover located within said central
processing complex and coupled to said one zone and said
another zone.

20 25. The system of claim 24, wherein said means for
initiating comprises means for instructing said data mover
to perform the move.

26. The system of claim 24, wherein said data mover comprises a fetch state machine and a store state machine employed in moving said data.

27. The system of claim 21, further comprising means
5 for determining whether said another zone is ready for the move, wherein the move does not take place until said another zone is ready.

28. The system of claim 27, wherein said means for determining comprises means for determining whether said
10 another zone is ready to receive a command from said one zone, wherein the move does not take place until said another zone is ready to receive the command.

29. The system of claim 27, wherein said means for determining comprises means for checking a buffer to
15 determine whether said another zone is ready.

30. The system of claim 29, wherein said buffer is of a data mover used for said moving.

31. The system of claim 21, wherein said means for moving comprises means for determining whether said another
20 zone is ready to receive one or more data areas of said data, prior to moving the one or more data areas from said one zone to said another zone.

32. The system of claim 31, wherein said means for determining comprising means for determining whether a predefined command is received from said one zone and said another zone by a data mover employed to perform the move,

5 wherein receipt of the predefined command from said one zone and said another zone indicates said another zone is prepared to receive the one or more data areas.

33. The system of claim 21, wherein said means for

10 moving comprises:

means for fetching data from a main memory of said one zone using one or more fetch memory requests generated by a fetch state machine; and

means for storing the fetched data in a main memory

15 of said another zone using one or more store memory requests generated by a store state machine.

34. The system of claim 33, further comprising means for placing said fetched data in one or more line buffers, which are used by said store state machine to generate the

20 one or more store memory requests.

35. The system of claim 33, wherein at least one of said one or more fetch memory requests and said one or more store memory requests is generated using information retrieved from an array coupled to at least one of said

25 fetch state machine and said store state machine.

36. The system of claim 33, wherein said means for fetching comprises means for processing by said main memory of said one zone said one or more fetch memory requests to fetch said data, wherein one or more responses by said main 5 memory of said one zone to said one or more fetch memory requests are not necessarily in a same order as receipt of the one or more fetch memory requests.

37. The system of claim 33, further comprising means for tracking progress of the fetching of the data and the 10 storing of the fetched data.

38. A system of moving data between zones of a central processing complex, said system comprising:

means for moving data from one zone of said central processing complex to another zone of said central processing complex, wherein said means for moving comprises:

means for creating one or more queue entries associated with a message requesting the move;

means for generating one or more fetch memory requests for said one or more queue entries to fetch the data from a memory of said one zone;

means for using the one or more fetch memory requests to fetch the data from the memory of said one zone;

means for placing the fetched data in one or more line buffers;

means for generating one or more store memory requests using the fetched data placed in the one or more line buffers; and

means for employing the one or more store memory requests to store the fetched data in a memory of said another zone.

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39. The system of claim 38, wherein said means for moving comprises a data mover located within said central processing complex and coupled to said one zone and said another zone.

5   40. The system of claim 39, wherein said data mover comprises control logic to perform the creating, and a queued memory line mover to perform the generating of one or more fetch memory requests, the placing of the fetched data in one or more line buffers, and the generating of one or 10 more store memory requests.

41. A system of moving data between zones of a central processing complex, said system comprising:

one zone of said central processing complex and another zone of said central processing complex; and

5   a data mover coupled to said one zone and said another zone to move data from said one zone to said another zone without using a channel interface and without using processor instructions.

42. The system of claim 41, wherein said one zone is
10 one of an operating system zone and a coupling facility zone and said another zone is the other of said operating system zone and said coupling facility zone.

43. The system of claim 41, wherein said data mover comprises a fetch state machine and a store state machine
15 employed in moving said data.

44. The system of claim 43, wherein said fetch state machine generates one or more fetch memory requests to fetch data from a main memory of said one zone, and wherein said store state machine generates one or more store memory
20 requests to store the fetched data in a main memory of said another zone.

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45. The system of claim 44, further comprising one or more line buffers to hold said fetched data, said one or more line buffers being used by said store state machine to generate the one or more store memory requests.

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46. A system of moving data between zones of a central processing complex, said system comprising:

a data mover to move data from one zone of said central processing complex to another zone of said

5   central processing complex, wherein said data mover comprises:

one or more queue entries associated with a message requesting the move;

a fetch state machine to generate one or more

10   fetch memory requests for said one or more queue entries to fetch the data from a memory of said one zone;

one or more line buffers coupled to said fetch state machine to receive the fetched data; and

15   a store state machine coupled to said one or more line buffers to generate one or more store memory requests using the fetched data of the one or more line buffers, wherein the one or more store memory requests are used to store the

20   fetched data in a memory of said another zone.

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